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Nitrogen Newsletter is a summary of recent publications, news and reports related to the cycling, effects and management of nitrogen. Prepared by Mary O'Brien and Jana Compton. Contact Jana Compton with any questions (Compton.jana@epa.gov)

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Table of Contents

Special Issues	1
Articles	2
News	12
Reports	14
Web Pages	15

Special Issues

Special issue on eutrophication and HABs

Chinese Journal of Oceanology and Limnology, 29(4), July 2011. ISSN 0254-4059.

<http://www.springerlink.com/content/0254-4059/29/4/>

Biogeochemical aspects of ecosystem restoration and rehabilitation

Edited by Ulo Mander and William J. Mitsch

Ecological Engineering, 37(7), July 2011. ISSN 0925-8574.

<http://www.sciencedirect.com/science/journal/09258574/37/7>

Selected papers presented in symposia organized at the 2009 conference of the International Society for Ecological Modelling (ISEM) in Quebec City, Canada, October 6–9, 2009

Ecological Modelling, 222(14, SI), July 24, 2011. ISSN 0304-3800.

<http://www.sciencedirect.com/science/journal/03043800/222/14>

Selected papers from the conference Urban Environmental Pollution: Overcoming Obstacles to Sustainability and Quality of Life (UEP2010), 20-23 June 2010, Boston, USA

Edited by W.J. Manning.

Environmental Pollution, 159(8-9, SI), August-September 2011. ISSN 0269-7491.

<http://www.sciencedirect.com/science/journal/02697491/159/8-9>

Special issue on the politics and policy of carbon capture and storage

Edited by Karin Backstrand, James Meadowcroft and Michael Oppenheimer

Global Environmental Change, 21(2), May 2011. ISSN 0959-3780.

<http://www.sciencedirect.com/science/journal/09593780/21/2>

Articles

Ahiablame, L. M., I. Chaubey, D. R. Smith, and B. A. Engel. **Effect of tile effluent on nutrient concentration and retention efficiency in agricultural drainage ditches** *Agricultural Water Management*, 98(8): 1271-1279, May 30, 2011. ISSN 0378-3774.
<http://dx.doi.org/10.1016/j.agwat.2011.03.002>

Akatsuka, Tetsuji, and Osamu Mitamura. **Response of denitrification rate associated with wetting and drying cycles in a littoral wetland area of Lake Biwa, Japan** *Limnology*, 12(2): 127-135, August 2011. ISSN 1439-8621.
<http://dx.doi.org/10.1007/s10201-010-0329-x>

Allen, Ridwaana, LaToya Myles, and Mark W. Heuer. **Ambient ammonia in terrestrial ecosystems: A comparative study in the Tennessee Valley, USA** *Science of the Total Environment*, 409(14): 2768-2772, June 15, 2011. ISSN 0048-9697.
<http://dx.doi.org/10.1016/j.scitotenv.2011.04.017>

Beatty, Perrin H., and Allen G. Good. **Future prospects for cereals that fix nitrogen** *Science*, 333(6041): 416-417, July 22, 2011. ISSN 1095-9203.
<http://dx.doi.org/10.1126/science.1209467>

Beck, Deborah A., Gwynn R. Johnson, and Graig A. Spolek. **Amending greenroof soil with biochar to affect runoff water quantity and quality** *Environmental Pollution*, 159(8-9, SI): 2111-2118, August-September 2011. ISSN 0269-7491.
<http://dx.doi.org/10.1016/j.envpol.2011.01.022>

Behera, Sailesh N., and Mukesh Sharma. **Degradation of SO(2), NO(2) and NH(3) leading to formation of secondary inorganic aerosols: An environmental chamber study** *Atmospheric Environment*, 45(24): 4015-4024, August 2011. ISSN 1352-2310.
<http://dx.doi.org/10.1016/j.atmosenv.2011.04.056>

Bell, J. N. B., S. L. Honour, and S. A. Power. **Effects of vehicle exhaust emissions on urban wild plant species** *Environmental Pollution*, 159(8-9, SI): 1984-1990, August-September 2011. ISSN 0269-7491.
<http://dx.doi.org/10.1016/j.envpol.2011.03.006>

Besaw, Levi M., Giles C. Thelen, Steve Sutherland, Kerry Metlen, and Ragan M. Callaway. **Disturbance, resource pulses and invasion: short-term shifts in competitive effects, not growth responses, favour exotic annuals** *Journal of Applied Ecology*, 48(4): 998-1006, August 2011. ISSN 0021-8901
<http://dx.doi.org/10.1111/j.1365-2664.2011.01988.x>

Borrett, S. R., M. A. Freeze, and A. K. Salas. **Equivalence of the realized input and output oriented indirect effects metrics in Ecological Network Analysis** *Ecological Modelling*, 222(13): 2142-2148, July 10, 2011. ISSN 0304-3800.
<http://dx.doi.org/10.1016/j.ecolmodel.2011.04.003>

Boyd, Eric S., Rachel K. Lange, Andrew C. Mitchell, Jeff R. Havig, Trinity L. Hamilton, Melissa J. Lafreniere, Everett L. Shock, John W. Peters, and Mark Skidmore. **Diversity, abundance, and potential activity of nitrifying and nitrate-reducing microbial assemblages in a subglacial ecosystem** *Applied and Environmental Microbiology*, 77(14): 4778-4787, July 2011. ISSN 0099-2240.

<http://dx.doi.org/10.1128/AEM.00376-11>

Carter, Mette S., Per Ambus, Kristian R. Albert, Klaus S. Larsen, Michael Andersson, Anders Prieme, Leon van der Linden, and Claus Beier. **Effects of elevated atmospheric CO₂, prolonged summer drought and temperature increase on N(2)O and CH(4) fluxes in a temperate heathland** *Soil Biology & Biochemistry*, 43(8): 1660-1670, August 2011. ISSN 0038-0717.

<http://dx.doi.org/10.1016/j.soilbio.2011.04.003>

Cheng, Yi, Zu-cong Cai, Jin-bo Zhang, and Scott X. Chang. **Gross N transformations were little affected by 4 years of simulated N and S depositions in an aspen-white spruce dominated boreal forest in Alberta, Canada** *Forest Ecology and Management*, 262(3): 571-578, August 1, 2011. ISSN 0378-1127.

<http://dx.doi.org/10.1016/j.foreco.2011.04.027>

Chien, Sen H., M. Mercedes Gearhart, and Sven Villagarcia. **Comparison of ammonium sulfate with other nitrogen and sulfur fertilizers in increasing crop production and minimizing environmental impact: A review** *Soil Science*, 176(7): 327-335, July 2011. ISSN 0038-075X.

<http://dx.doi.org/10.1097/SS.0b013e31821f0816>

Compton, Jana E., John A. Harrison, Robin L. Dennis, Tara L. Greaver, Brian H. Hill, Stephen J. Jordan, Henry Walker, and Holly V. Campbell. **Ecosystem services altered by human changes in the nitrogen cycle: a new perspective for US decision making** *Ecology Letters*, 14(8): 804-815, August 2011. ISSN 1461-023X.

<http://dx.doi.org/10.1111/j.1461-0248.2011.01631.x>

Cuhel, J., and M. Simek. **Effect of pH on the denitrifying enzyme activity in pasture soils in relation to the intrinsic differences in denitrifier communities** *Folia Microbiologica*, 56(3): 230-235, May 2011. ISSN 0015-5632.

<http://dx.doi.org/10.1007/s12223-011-0045-x>

de Klein, Jeroen J. M., and Albert A. Koelmans. **Quantifying seasonal export and retention of nutrients in West European lowland rivers at catchment scale** *Hydrological Processes*, 25(13): 2102-2111, June 30, 2011. ISSN 0885-6087.

<http://dx.doi.org/10.1002/hyp.7964>

Dise, Nancy B., and Gareth K. Phoenix. **Peatlands in a changing world** *New Phytologist*, 191(2): 309-311, July 2011. ISSN 0028-646X.
<http://dx.doi.org/10.1111/j.1469-8137.2011.03801.x>

Domingues, Rita B., Ana B. Barbosa, Ulrich Sommer, and Helena M. Galvao. **Ammonium, nitrate and phytoplankton interactions in a freshwater tidal estuarine zone: potential effects of cultural eutrophication** *Aquatic Sciences*, 73(3): 331-343, August 2011. ISSN 1015-1621.

<http://dx.doi.org/10.1007/s00027-011-0180-0>

Evans, Sarah E., Ingrid C. Burke, and William K. Lauenroth. **Controls on soil organic carbon and nitrogen in Inner Mongolia, China: A cross-continental comparison of temperate grasslands** *Global Biogeochemical Cycles*, 25: GB3006, July 12, 2011. ISSN 0886-6236.
<http://dx.doi.org/10.1029/2010GB003945>

Exbrayat, Jean-Francois, Neil R. Viney, Hans-Georg Frede, and Lutz Breuer. **Probabilistic multi-model ensemble predictions of nitrogen concentrations in river systems** *Geophysical Research Letters*, 38: L12401, June 29, 2011. ISSN 0094-8276.
<http://dx.doi.org/10.1029/2011GL047522>

Gonzalez-Delgado, Amir M., and Manoj K. Shukla. **Coupled transport of nitrate and chloride in soil columns** *Soil Science*, 176(7): 346-355, July 2011. ISSN 0038-075X.
<http://dx.doi.org/10.1097/SS.0b013e31821f48f2>

Gundale, Michael J., Thomas H. Deluca, and Annika Nordin. **Bryophytes attenuate anthropogenic nitrogen inputs in boreal forests** *Global Change Biology*, 17(8): 2743-2753, August 2011. ISSN 1354-1013.
<http://dx.doi.org/10.1111/j.1365-2486.2011.02407.x>

Hillebrand, Helmut, and Viola Lehmpfuhl. **Resource stoichiometry and consumers control the biodiversity-productivity relationship in pelagic metacommunities** *American Naturalist*, 178(2): 171-181, August 2011. ISSN 0003-0147.
<http://dx.doi.org/10.1086/660831>

Hirose, Tadaki. **Nitrogen use efficiency revisited** *Oecologia*, 166(4): 863-867, August 2011. ISSN 0029-8549.
<http://dx.doi.org/10.1007/s00442-011-1942-z>

Holmes, Christopher D., Qi Tang, and Michael J. Prather. **Uncertainties in climate assessment for the case of aviation NO** *Proceedings of the National Academy of Sciences of the United States of America*, 108(27): 10997-11002, July 5, 2011. ISSN 0027-8424.
<http://dx.doi.org/10.1073/pnas.1101458108>

Huang, Jung-Chen, William J. Mitsch, and Dave L. Johnson. **Estimating biogeochemical and biotic interactions between a stream channel and a created riparian wetland: A medium-**

scale physical model *Ecological Engineering*, 37(7, SI): 1035-1049, July 2011. ISSN 0925-8574.

<http://dx.doi.org/10.1016/j.ecoleng.2010.12.001>

Hufnagl-Eichner, Stefanie, Steven A. Wolf, and Laurie E. Drinkwater. **Assessing social-ecological coupling: Agriculture and hypoxia in the Gulf of Mexico** *Global Environmental Change-Human and Policy Dimensions*, 21(2, SI): 530-539, May 2011. ISSN 0959-3780.

<http://dx.doi.org/10.1016/j.gloenvcha.2010.11.007>

Itoh, Masayuki, Shigeto Sudo, Shizuka Mori, Hiroshi Saito, Takahiro Yoshida, Yutaka Shiratori, Shinobu Suga, Nanako Yoshikawa, Yasufumi Suzue, Hiroyuki Mizukami, Toshiyuki Mochida, and Kazuyuki Yagi. **Mitigation of methane emissions from paddy fields by prolonging midseason drainage** *Agriculture Ecosystems & Environment*, 141(3-4): 359-372, May 2011. ISSN 0167-8809.

<http://dx.doi.org/10.1016/j.agee.2011.03.019>

Jaeger, Nadine, Claus Florian Stange, Bernard Ludwig, and Heiner Flessa. **Emission rates of N(2)O and CO(2) from soils with different organic matter content from three long-term fertilization experiments-a laboratory study** *Biology and Fertility of Soils*, 47(5): 483-494, July 2011. ISSN 0178-2762.

<http://dx.doi.org/10.1007/s00374-011-0553-5>

Jeffers, Elizabeth S., Michael B. Bonsall, Stephen J. Brooks, and Katherine J. Willis. **Abrupt environmental changes drive shifts in tree-grass interaction outcomes** *Journal of Ecology*, 99(4): 1063-1070, July 2011. ISSN 0022-0477.

<http://dx.doi.org/10.1111/j.1365-2745.2011.01816.x>

Johansson, Otilia, Johan Olofsson, Reiner Giesler, and Kristin Palmqvist. **Lichen responses to nitrogen and phosphorus additions can be explained by the different symbiont responses** *New Phytologist*, 191(3): 795-805, August 2011. ISSN 0028-646X.

<http://dx.doi.org/10.1111/j.1469-8137.2011.03739.x>

Jokela, William E., and Michael D. Casler. **Transport of phosphorus and nitrogen in surface runoff in a corn silage system: Paired watershed methodology and calibration period results** *Canadian Journal of Soil Science*, 91(3, SI): 479-491, June 2011. ISSN 0008-4271.

<http://dx.doi.org/10.4141/CJSS09095>

Jurskis, Vic, John Turner, Marcia Lambert, and Huiquan Bi. **Fire and N cycling: getting the perspective right** *Applied Vegetation Science*, 14(3): 433-434, August 2011. ISSN 1402-2001.

<http://dx.doi.org/10.1111/j.1654-109X.2011.01130.x>

Kennedy, C., S. Pincetl, and P. Bunje. **The study of urban metabolism and its applications to urban planning and design** *Environmental Pollution*, 159(8-9, SI: Conference on Urban Environmental Pollution - Overcoming Obstacles to Sustainability and Quality of Life, June 20-23, 2010, Boston, MA): 1965-1973, August-September 2011. ISSN .0269-7491.

<http://dx.doi.org/10.1016/j.envpol.2010.10.022>

Kim, Haryun, and Hojeong Kang. **The impacts of excessive nitrogen additions on enzyme activities and nutrient leaching in two contrasting forest soils** *Journal of Microbiology*, 49(3): 369-375, June 2011. ISSN 1225-8873.
<http://dx.doi.org/10.1007/s12275-011-0421-x>

Kinney, Erin L., and Ivan Valiela. **Nitrogen loading to Great South Bay: Land use, sources, retention, and transport from land to bay** *Journal of Coastal Research*, 27(4): 672-686, July 2011. ISSN 0749-0208.

<http://dx.doi.org/10.2112/JCOASTRES-D-09-00098.1>

Koester, Jan Reent, Laura Cardenas, Mehmet Senbayram, Roland Bol, Reinhard Well, Mark Butler, Karl Hermann Muehling, and Klaus Dittert. **Rapid shift from denitrification to nitrification in soil after biogas residue application as indicated by nitrous oxide isotopomers** *Soil Biology & Biochemistry*, 43(8): 1671-677, August 2011. ISSN 0038-0717.
<http://dx.doi.org/10.1016/j.soilbio.2011.04.004>

Koskinen, Markku, Tapani Sallantaus, and Harri Vasander. **Post-restoration development of organic carbon and nutrient leaching from two ecohydrologically different peatland sites** *Ecological Engineering*, 37(7, SI): 1008-1016, July 2011. ISSN 0925-8574.
<http://dx.doi.org/10.1016/j.ecoleng.2010.06.036>

Kuang, Yuanwen, Fangfang Sun, Dazhi Wen, Zihong Xu, Longbin Huang, and Jiong Li. **Nitrogen deposition influences nitrogen isotope composition in soil and needles of Pinus massoniana forests along an urban-rural gradient in the Pearl River Delta of south China** *Journal of Soils and Sediments*, 11(4): 589-595, June 2011. ISSN 1439-0108.
<http://dx.doi.org/10.1007/s11368-011-0342-7>

Leytem, April B., Robert S. Dungan, David L. Bjorneberg, and Anita C. Koehn. **Emissions of ammonia, methane, carbon dioxide, and nitrous oxide from dairy cattle housing and manure management systems** *Journal of Environmental Quality*, 40(5):1383-1394, September 2011. ISSN 1537-2537.
<http://dx.doi.org/10.2134/jeq2009.0515>

Li, Fadong, Qiuying Zhang, Changyuan Tang, Kouichiro Fukumoto, and Hiromi Ota. **Denitrifying bacteria and hydrogeochemistry in a natural wetland adjacent to farmlands in Chiba, Japan** *Hydrological Processes*, 25(14): 2237-2245, July 1, 2011. ISSN 0885-6087.
<http://dx.doi.org/10.1002/hyp.7988>

Limpens, J., G. Granath, U. Gunnarsson, R. Aerts, S. Bayley, L. Bragazza, J. Bubier, A. Buttler, L. J. L. van den Berg, A-J. Francez, R. Gerdol, P. Grosvernier, M. M. P. D. Heijmans, M. R. Hoosbeek, S. Hotes, M. Ilomets, I. Leith, E. A. D. Mitchell, T. Moore, M. B. Nilsson, J-F. Nordbakken, L. Rochefort, H. Rydin, L. J. Sheppard, M. Thormann, M. M. Wiedermann, B. L. Williams, and B. Xu. **Climatic modifiers of the response to nitrogen deposition in peat-forming Sphagnum mosses: a meta-analysis** *New Phytologist*, 191(2): 496-507, July 2011. ISSN 0028-646X.

<http://dx.doi.org/10.1111/j.1469-8137.2011.03680.x>

Lindim, C., J. L. Pinho, and J. M. P. Vieira. **Analysis of spatial and temporal patterns in a large reservoir using water quality and hydrodynamic modeling** *Ecological Modelling*, 222(14, SI): 2485-2494, July 24, 2011. ISSN 0304-3800.

<http://dx.doi.org/10.1016/j.ecolmodel.2010.07.019>

Lisboa, Carolina Cardoso, Klaus Butterbach-Bahl, Matthias Mauder, and Ralf Kiese.

Bioethanol production from sugarcane and emissions of greenhouse gases - known and unknowns *Global Change Biology Bioenergy*, 3(4): 277-292, August 2011. ISSN 1757-1693.

<http://dx.doi.org/10.1111/j.1757-1707.2011.01095.x>

Lisowska, Maja. **Lichen recolonisation in an urban-industrial area of southern Poland as a result of air quality improvement** *Environmental Monitoring and Assessment*, 179(1-4): 177-190, August 2011. ISSN 0167-6369.

<http://dx.doi.org/10.1007/s10661-010-1727-6>

Liu, Y. T., Y. E. Li, Y. F. Wan, Chen, Q. Z. Gao, Y. Li, and X. B. Qin. **Nitrous oxide emissions from irrigated and fertilized spring maize in semi-arid northern China** *Agriculture Ecosystems & Environment*, 141(3-4): 287-295, May 2011. ISSN 0167-8809.

<http://dx.doi.org/10.1016/j.agee.2011.03.002>

Lucas, R. W., J. Klaminder, M. N. Futter, K. H. Bishop, G. Egnell, H. Laudon, and P. Hogberg. **A meta-analysis of the effects of nitrogen additions on base cations: Implications for plants, soils, and streams** *Forest Ecology and Management*, 262(2): 95-104, July 15, 2011. ISSN 0378-1127.

<http://dx.doi.org/10.1016/j.foreco.2011.03.018>

Madsen, Christian, Ulrike Gehring, Siri Eldevik Haberg, Per Nafstad, Kees Meliefste, Wenche Nystad, Karin C. Lodrup Carlsen, and Bert Brunekreef. **Comparison of land-use regression models for predicting spatial NO(x) contrasts over a three year period in Oslo, Norway** *Atmospheric Environment*, 45(21): 3576-3583. July 2011. ISSN 1352-2310.

<http://dx.doi.org/10.1016/j.atmosenv.2011.03.069>

Magalhaes, Catarina M., Ana Machado, Patricia Matos, Adriano A. Bordalo. **Impact of copper on the diversity, abundance and transcription of nitrite and nitrous oxide reductase genes in an urban European estuary** *FEMS Microbiology Ecology*, 77(2): 274-284, August 2011. ISSN 0168-6496.

<http://dx.doi.org/10.1111/j.1574-6941.2011.01107.x>

Manninen, S., C. Woods, I. D. Leith, and L. J. Sheppard. **Physiological and morphological effects of long-term ammonium or nitrate deposition on the green and red (shade and open grown) Sphagnum capillifolium** *Environmental and Experimental Botany*, 72(2): 140-148, September 2011. ISSN 0098-8472.

<http://dx.doi.org/10.1016/j.envexpbot.2011.02.015>

Marushchak, M. E., A. Pitkamaki, H. Koponen, C. Biasi, M. Seppala, and P. J. Martikainen. **Hot spots for nitrous oxide emissions found in different types of permafrost peatlands** *Global Change Biology*, 17(8): 2601-2614, August 2011. ISSN 1354-1013.
<http://dx.doi.org/10.1111/j.1365-2486.2011.02442.x>

Mencio, Anna, Merce Boy, and Josep Mas-Pla. **Analysis of vulnerability factors that control nitrate occurrence in natural springs (Osona Region, NE Spain)** *Science of the Total Environment*, 409(16): 3049-3058, July 15, 2011. ISSN 0048-9697.
<http://dx.doi.org/10.1016/j.scitotenv.2011.04.048>

Miaud, Claude, Neus Oromi, Sandra Navarro, and Delfi Sanuy. **Intra-specific variation in nitrate tolerance in tadpoles of the Natterjack toad** *Ecotoxicology*, 20(6): 1176-1183, August 2011. ISSN 0963-9292.
<http://dx.doi.org/10.1007/s10646-011-0662-9>

Minet, Eddy, Robbie Goodhue, Catherine E. Coxon, Robert M. Kalin, and Wolfram Meier-Augenstein. **Simplifying and improving the extraction of nitrate from freshwater for stable isotope analyses** *Journal of Environmental Monitoring*, 13(7): 2062-2066, July 2011. ISSN 1464-0325.
<http://dx.doi.org/10.1039/c1em10289c>

Mozdzer, T. J., M. Kirwan, K. J. McGlathery, and J. C. Zieman. **Nitrogen uptake by the shoots of smooth cordgrass *Spartina alterniflora*** *Marine Ecology-Progress Series*, 433: 43-52, 2011. ISSN 0171-8630.
<http://dx.doi.org/10.3354/meps09117>

Nejadhashemi, A. P., S. A. Woznicki, and K. R. Douglas-Mankin. **Comparison of four models (STEPL, PLOAD, L-THIA, and SWAT) in simulating sediment, nitrogen, and phosphorus loads and pollutant source areas** *Transactions of the ASABE*, 54(3): 875-890, May-June 2011. ISSN 2151-0032.
<http://asae.frymulti.com/abstract.asp?aid=37113&t=1>

Nizzoli, Daniele, David Thomas Welsh, and Pierluigi Viaroli. **Seasonal nitrogen and phosphorus dynamics during benthic clam and suspended mussel cultivation** *Marine Pollution Bulletin*, 62(6): 1276-1287, June 2011. ISSN 0025-326X.
<http://dx.doi.org/10.1016/j.marpolbul.2011.03.009>

O'Sullivan, Odhran S., Paul Horswill, Gareth K. Phoenix, John A. Lee, and Jonathan R. Leake. **Recovery of soil nitrogen pools in species-rich grasslands after 12 years of simulated pollutant nitrogen deposition: a 6-year experimental analysis** *Global Change Biology*, 17(8): 2615-2628, August 2011. ISSN 1354-1013.
<http://dx.doi.org/10.1111/j.1365-2486.2011.02403.x>

Oczkowski, Autumn J., Roger J. Flower, Julian R. Thompson, Fethi Ayache, Mahmoud H. Ahmed, Mohamed Ramdani, and Simon Turner. **Evidence of North Africa's green revolution**

preserved in sedimentary organic matter deposited in three coastal lagoons *Ecological Applications*, 21(5): 1708-1717, July 2011. ISSN 1051-0761.
<http://dx.doi.org/10.1890/10-0446.1>

Oenema, J., H. van Keulen, R. L. M. Schils, and H. F. M. Aarts. **Participatory farm management adaptations to reduce environmental impact on commercial pilot dairy farms in the Netherlands** *NJAS-Wageningen Journal of Life Sciences*, 58(1-2): 39-48, June 2011. ISSN 1573-5214.

<http://dx.doi.org/10.1016/j.njas.2010.08.001>

Palani, Sundarambal, Pavel Tkalich, Rajasekhar Balasubramanian, and Jegathambal Palanichamy. **ANN application for prediction of atmospheric nitrogen deposition to aquatic ecosystems** *Marine Pollution Bulletin*, 62(6): 1198-1206, June 2011. ISSN 0025-326X.

<http://dx.doi.org/10.1016/j.marpolbul.2011.03.033>

Perakis, Steven S., and Emily R. Sinkhorn. **Biogeochemistry of a temperate forest nitrogen gradient** *Ecology*, 92(7): 1481-1491, July 2011. ISSN 0012-9658.

<http://dx.doi.org/10.1890/10-1642.1>

Radersma, S., and A. L. Smit. **Assessing denitrification and N leaching in a field with organic amendments** *NJAS-Wageningen Journal of Life Sciences*, 58(1-2): 21-29, June 2011. ISSN 1573-5214.

<http://dx.doi.org/10.1016/j.njas.2010.06.001>

Rissanen, Antti Juhani, Marja Tirola, and Anne Ojala. **Spatial and temporal variation in denitrification and in the denitrifier community in a boreal lake** *Aquatic Microbial Ecology*, 64(1): 27-40, 2011. ISSN 0948-3055.

<http://dx.doi.org/10.3354/ame01506>

Schulze, E. D., S. Luyssaert, and P. Ciais. **Response to 'The European nitrogen cycle: response to Schulze et al, Global Change Biology (2010) 16, pp. 1451-1469'** *Global Change Biology*, 17(8): 2758-2761, August 2011. ISSN 1354-1013.

<http://dx.doi.org/10.1111/j.1365-2486.2011.02440.x>

Shanin, Vladimir N., Alexander S. Komarov, Alexey V. Mikhailov, and Sergei S. Bykhovets. **Modelling carbon and nitrogen dynamics in forest ecosystems of Central Russia under different climate change scenarios and forest management regimes** *Ecological Modelling*, 222(14, SI): 2262-2275, July 24, 2011. ISSN 0304-3800.

<http://dx.doi.org/10.1016/j.ecolmodel.2010.11.009>

Skjøth, C. A., C. Geels, H. Berge, S. Gyldenkaerne, H. Fagerli, T. Ellermann, L. M. Frohn, J. Christensen, K. M. Hansen, K. Hansen, and O. Hertel. **Spatial and temporal variations in ammonia emissions - a freely accessible model code for Europe** *Atmospheric Chemistry and Physics*, 11(11): 5221-5236, 2011. ISSN 1680-7316.

<http://dx.doi.org/10.5194/acp-11-5221-2011>

Smaill, Simeon J., Peter W. Clinton, and Barbara K. Hoeck. **A nutrient balance model (NuBalM) to predict biomass and nitrogen pools in Pinus radiata forests** *Forest Ecology and Management*, 262(2): 270-277, July 15, 2011. ISSN 0378-1127.
<http://dx.doi.org/10.1016/j.foreco.2011.03.032>

Smith, Amanda C., Jagtar S. Bhatti, Hua Chen, Mark E. Harmon, and Paul A. Arp. **Modelling above- and below-ground mass loss and N dynamics in wooden dowels (LIDET) placed across North and Central America biomes at the decadal time scale** *Ecological Modelling*, 222(14, SI), 2276-2290, July 24, 2011. ISSN 0304-3800.
<http://dx.doi.org/10.1016/j.ecolmodel.2010.09.018>

Smucker, Nathan J., and Morgan L. Vis. **Diatom biomonitoring of streams: Reliability of reference sites and the response of metrics to environmental variations across temporal scales** *Ecological Indicators*, 11(6): 1647-1657, November 2011. ISSN 1470-160X.
<http://dx.doi.org/10.1016/j.ecolind.2011.04.011>

Stadmark, J., and D. J. Conley. **Mussel farming as a nutrient reduction measure in the Baltic Sea: Consideration of nutrient biogeochemical cycles** *Marine Pollution Bulletin*, 62(7): 1385-1388, July 2011. ISSN 0025-326X.
<http://dx.doi.org/10.1016/j.marpolbul.2011.05.001>

Stuart, M. E., D. C. Goody, J. P. Bloomfield, and A. T. Williams. **A review of the impact of climate change on future nitrate concentrations in groundwater of the UK** *Science of the Total Environment*, 409(15): 2859-2873, July 1, 2011. ISSN 0048-9697.
<http://dx.doi.org/10.1016/j.scitotenv.2011.04.016>

Thompson, S. E., N. B. Basu, J. Lascurain, Jr., A. Aubeneau, and P. S. C. Rao. **Relative dominance of hydrologic versus biogeochemical factors on solute export across impact gradients** *Water Resources Research*, 47: W00J05, July 1, 2011. ISSN 0043-1397.
<http://dx.doi.org/10.1029/2010WR009605>

van Groenigen, Kees Jan, Craig W. Osenberg, and Bruce A. Hungate. **Increased soil emissions of potent greenhouse gases under increased atmospheric CO₂** *Nature*, 475(7355): 214-216, July 14, 2011. ISSN 0028-0836.
<http://dx.doi.org/10.1038/nature10176>

van Katwijk, M. M., M. E. W. van der Welle, E. C. H. E. T. Lucassen, J. A. Vonk, M. J. A. Christianen, W. Kiswara, I. Inayat al Hakim, A. Arifin, T. J. Bouma, J. G. M. Roelofs, and L. P. M. Lamers. **Early warning indicators for river nutrient and sediment loads in tropical seagrass beds: A benchmark from a near-pristine archipelago in Indonesia** *Marine Pollution Bulletin*, 62(7): 1512-1520, July 2011. ISSN 0025-326X.
<http://dx.doi.org/10.1016/j.marpolbul.2011.04.007>

Verbaendert, Ines, Nico Boon, Paul De Vos, and Kim Heylen. **Denitrification is a common feature among members of the genus *Bacillus*** *Systematic and Applied Microbiology*, 34(5): 385-391, July 2011. ISSN 0723-2020.

<http://dx.doi.org/10.1016/j.syapm.2011.02.003>

Vovides, Alejandra G., Jorge Lopez-Portillo, and Yoav Bashan. **N(2)-fixation along a gradient of long-term disturbance in tropical mangroves bordering the gulf of Mexico** *Biology and Fertility of Soils*, 47(5): 567-576, July 2011. ISSN 0178-2762.
<http://dx.doi.org/10.1007/s00374-011-0562-4>

Wamelink, G. W. W., P. W. Goedhart, A. H. Malinowska, J. Y. Frissen, R. J. M. Wegman, P. A. Slim, and H. F. van Dobben. **Ecological ranges for the pH and NO(3) of syntaxa: a new basis for the estimation of critical loads for acid and nitrogen deposition** *Journal of Vegetation Science*, 22(4, SI): 741-749, August 2011. ISSN 1100-9233.

<http://dx.doi.org/10.1111/j.1654-1103.2011.01286.x>

Wang, J. Y., J. X. Jia, Z. Q. Xiong, M. A. K. Khalil, and G. X. Xing. **Water regime-nitrogen fertilizer-straw incorporation interaction: Field study on nitrous oxide emissions from a rice agroecosystem in Nanjing, China** *Agriculture Ecosystems & Environment*, 141(3-4): 437-446, May 2011. ISSN 0167-8809.

<http://dx.doi.org/10.1016/j.agee.2011.04.009>

Wang, James S., Steven P. Hamburg, Donald E. Pryor, Kartik Chandran, and Glen T. Daigger. **Emissions credits: Opportunity to promote integrated nitrogen management in the wastewater sector** *Environmental Science & Technology*, 2011, 45(15): 6239–6246, August 1, 2011. ISSN 0013-936X.

<http://dx.doi.org/10.1021/es200419h>

Wang, Rui, Georg Willibald, Qi Feng, Xunhua Zheng, Tingting Liao, Nicolas Brueggemann, and Klaus Butterbach-Bahl. **Measurement of N(2), N(2)O, NO, and CO(2) emissions from soil with the gas-row-soil-core technique** *Environmental Science & Technology*, 45(14): 6066-6072, July 15, 2011. ISSN 0013-936X.

<http://dx.doi.org/10.1021/es1036578>

Wang, Wei, Ying Liu, Linlin Geng, Zhou Yang, and Yafen Chen. **The effect of nitrogen concentration and its interaction with light intensity on population dynamics and polysaccharide content of *Microcystis aeruginosa*** *Journal of Freshwater Ecology*, 26(2): 241-248, June 2011. ISSN 0270-5060.

<http://dx.doi.org/10.1080/02705060.2011.555205>

Weller, Donald E., Matthew E. Baker, and Thomas E. Jordan. **Effects of riparian buffers on nitrate concentrations in watershed discharges: new models and management implications** *Ecological Applications*, 21(5): 1679-1695, July 2011. ISSN 1051-0761.

<http://dx.doi.org/10.1890/10-0789.1>

Wessen, Ella, and Sara Hallin. **Abundance of archaeal and bacterial ammonia oxidizers - Possible bioindicator for soil monitoring** *Ecological Indicators*, 11(6): 1696-1698, November 2011. ISSN 1470-160X.

<http://dx.doi.org/10.1016/j.ecolind.2011.04.018>

Wild-Allen, Karen, Peter A. Thompson, John K. Volkman, and John Parslow. **Use of a coastal biogeochemical model to select environmental monitoring sites** *Journal of Marine Systems*, 88(1, SI): 120-127, October 2011. ISSN 0924-7963.

<http://dx.doi.org/10.1016/j.jmarsys.2011.02.017>

Winiwarter, Wilfried, Michael Obersteiner, Keith A. Smith, and Mark A. Sutton. **The European nitrogen cycle: commentary on Schulze et al.**, *Global Change Biology* (2010) 16, pp. 1451-1469 *Global Change Biology*, 17(8): 2754-2757, August 2011. ISSN 1354-1013.

<http://dx.doi.org/10.1111/j.1365-2486.2010.02353.x>

Wuyts, Karen, An De Schrijver, Jeroen Staelens, Lotte Van Nevel, Sandy Adriaenssens, and Kris Verheyen. **Soil inorganic N leaching in edges of different forest types subject to high N deposition loads** *Ecosystems*, 14(5): 818-834, August 2011. ISSN 1432-9840.

<http://dx.doi.org/10.1007/s10021-011-9448-4>

Zhao, Huabiao, Baiqing Xu, Tandong Yao, Lide Tian, and Zhen Li. **Records of sulfate and nitrate in an ice core from Mount Muztagata, central Asia** *Journal of Geophysical Research-Atmospheres*, 116: D13304, July 14, 2011. ISSN 0148-0227.

<http://dx.doi.org/10.1029/2011JD015735>

Zhou, Xianliang, Ning Zhang, Michaela TerAvest, David Tang, Jian Hou, Steve Bertman, Marjan Alaghmand, Paul B. Shepson, Mary Anne Carroll, Stephen Griffith, Sebastien Dusander, and Philip S. Stevens. **Nitric acid photolysis on forest canopy surface as a source for tropospheric nitrous acid** *Nature Geoscience*, 4(7): 440-443, July 2011. ISSN 1752-0894.

<http://dx.doi.org/10.1038/NGEO1164>

News

Big chicken: pollution and industrial poultry production in America

Pew Environment Group News Room, July 26, 2011.

<http://www.pewenvironment.org/news-room/reports/big-chicken-85899361375>

For BNA subscribers (including EPA staff):

Water pollution: Pew report urges caps on poultry density based on crops' capacity to absorb nutrients

Daily Environment Report, July 28, 2011

http://news.bna.com/deln/DELNWB/split_display.adp?fedfid=21498707&vname=dennotallissues&wsn=493228000&searchid=15691327&doctypeid=1&type=date&mode=doc&split=0&scm=DELNWB&pg=2

Risk assessment: EPA posts final IRIS assessment for urea

Daily Environment Report, July 18, 2011

http://news.bna.com/deln/DELNWB/split_display.adp?fedfid=21320209&vname=dennotallissues&wsn=493484500&searchid=15691327&doctypeid=1&type=date&mode=doc&split=0&scm=DELNWB&pg=2

Chesapeake Bay: Jurisdictions ahead of or meeting schedule to reduce pollutants in bay, report says

Daily Environment Report, July 12, 2011

http://news.bna.com/deln/DELNWB/split_display.adp?fedfid=21286070&vname=dennotallissues&wsn=493616000&searchid=15691327&doctypeid=1&type=date&mode=doc&split=0&scm=DELNWB&pg=2

Pollution: Federal court says discharges not ‘taking’ of Florida property owners' riparian rights

Daily Environment Report, July 5, 2011

http://news.bna.com/deln/DELNWB/split_display.adp?fedfid=21241287&vname=dennotallissues&wsn=493792500&searchid=15691327&doctypeid=1&type=date&mode=doc&split=0&scm=DELNWB&pg=2

For Greenwire subscribers (including EPA staff):

Quinlan, Paul.

Water pollution: Report on chicken-farm pollution draws rebuke from industry

E&ENews PM, July 29, 2011

<http://www.eenews.net/eenewspm/2011/07/29/archive/8>

Water pollution: Fla. officials, industry argue against EPA regulations

Greenwire, July 25, 2011

<http://www.eenews.net/Greenwire/2011/07/25/archive/20>

Chesapeake Bay: Dead zone could be bay's largest ever

Greenwire, July 25, 2011

<http://www.eenews.net/Greenwire/2011/07/25/archive/24>

Irfan, Umair.

Markets: Trading nitrogen emissions could lead to clean water and clean air

ClimateWire, July 25, 2011

<http://www.eenews.net/climatewire/2011/07/25/archive/5>

Stecker, Tiffany.

Agriculture: Dairy farms churn out GHGs, but higher efficiency might make up for it

ClimateWire, July 20, 2011

<http://www.eenews.net/climatewire/2011/07/20/archive/9>

Stecker, Tiffany.

Science: Soils appear to amplify the warming power of greenhouse gases -- study

ClimateWire, July 14, 2011

<http://www.eenews.net/climatewire/2011/07/14/archive/2>

Nelson, Gabriel.

Air pollution: EPA opts to wait on acid rain overhaul

E&ENews PM, July 13, 2011

<http://www.eenews.net/eenewspm/2011/07/13/archive/1>

Abruzzese, Sarah.

Water: After illness, Inhofe jokes he was attacked by the environment

E&E Daily, July 6, 2011

<http://www.eenews.net/EEDaily/2011/07/06/archive/3>

For Inside EPA subscribers (including EPA staff):

Study finds mobile source models significantly underestimate emissions

Inside EPA, July 29, 2011

<http://insideepa.com/Inside-EPA/Inside-EPA-07/29/2011/study-finds-mobile-source-models-significantly-underestimate-emissions/menu-id-153.html>

EPA finds all states 'unclassifiable' for new nitrogen dioxide standard

Clean Air Report, July 21, 2011

<http://insideepa.com/Clean-Air-Report/Clean-Air-Report-07/21/2011/epa-finds-all-states-unclassifiable-for-new-nitrogen-dioxide-standard/menu-id-154.html>

EPA science advisers seek state discretion in ozone monitoring redesign

Clean Air Report, July 21, 2011

<http://insideepa.com/Clean-Air-Report/Clean-Air-Report-07/21/2011/epa-science-advisers-seek-state-discretion-in-ozone-monitoring-redesign/menu-id-154.html>

Reports

MILDENBERGER v. U.S.

643 F.3d 938 (2011), United States Court of Appeals, Federal Circuit, June 30, 2011.

<http://www.cafc.uscourts.gov/images/stories/opinions-orders/10-5084.pdf>

Big chicken: Pollution and industrial poultry production in the United States

Washington, D.C.: The Pew Environment Group, July 27, 2011.

http://www.pewenvironment.org/uploadedFiles/PEG/Publications/Report/PEG_BigChicken_July_2011.pdf

Poultry industry statement on Pew's 'Report'

Tucker, Georgia, Washington, D.C.: U.S. Poultry and Egg Association, National Chicken Council, 2011.

<http://www.nationalchickencouncil.com/files/PewPoultryIndustryStatement.pdf>

Web Pages

Chesapeake Bay Program 2011 Executive Council Meeting

<http://www.chesapeakebay.net/ec2011.aspx?menuitem=58593>

Source: Chesapeake Bay Program, July 11, 2011.

Urea (CASRN: 57-13-6)

<http://www.epa.gov/iris/subst/1022.htm>

Source: U.S. Environmental Protection Agency, Integrated Risk Information System, July 13, 2011.

Books

The European nitrogen assessment: Sources, effects and policy perspectives

Sutton, Mark A., Clare M. Howard, Jan Willem Erisman, Gilles Billen, Albert Bleeker, Peringuey Grennfelt, Hans van Grinsven, and Bruna Grizzetti, Eds.

Cambridge: Cambridge University Press, 2011. ISBN 9781107006126.